

Although the conveyance of syphilis by physicians or attendants to their patients must be very rare, yet every one should be alive to the possibility, and "eternal vigilance is the price of safety."

- (1) On the Dangers Arising from Syphilis in the Practice of Dentistry, by Dr. L. D. Bulkley, *International Dental Journal*, Aug. and Sept., 1890.
- (2) *Abstract Annales de Derm. et de Syph. s. ii. t. iii. p. 129.*
- (3) *Diagnosis and Treat. of Syph.*, London, 1886, p. 29.
- (4) Jumeon. These de Paris, 1880. Quoted by Bulkley, on the Dangers Arising from Syphilis in the practice of Dentistry, *International Dental Journal*, August and September, 1890.
- (5) *Prophylaxis de la Syphilis* par A. Fournier, p. 301.
- (6) *Ann. de Derm. et de Syph. s. II., v. VII., p. 483.*
- (7) *Annales. de Derm. et de Syph. Serie II. Tome IV., p. 114.*
- (8) *Fortschritte der Med.* March 1, 1883, Beilage 5, p. 34. Bulkley's Bibliography of Extragenital Chancres.
- (9) Mauriac. Syphilis primitive et Syphilis secondaire, p. 231.
- (10) *Med. Record*, 1891, p. 73.

A CASE OF HUMAN GLANDERS.*

By WILLIAM FITCH CHENEY, M. D., San Francisco.

ON June 9, 1904, I saw, in consultation with Dr. David A. Beattie in Santa Clara, a case that at the time was a puzzle. The patient had been taken ill on June 2d, and at the time I saw him, a week later, his condition was a critical one. The important features of the case were as follows:

First—Onset with headache, aching of the bones, nausea, vomiting, fever and general malaise—the symptoms, in short, of an acute infection of some sort. These symptoms had been more or less persistent ever since the onset.

Second—On June 5th, an inflamed area had developed on the top of the man's head, which was not covered by hair. At the time I saw him, on the morning of the 9th, this inflamed area had become a large bulla, exuding a bloody, purulent secretion, and the whole top of the head around this lesion was fiery red, as in erysipelas.

Third—All over the body was scattered a peculiar eruption in various stages of development. I saw at the time of my examination numerous small red papules, larger vesicles and pustules and a number of large, pemphigus-like bullae the size of a silver dollar, some of them containing a yellowish, blood-stained, purulent secretion that exuded and formed crusts. Around each of these lesions there was a reddened, infiltrated, brawny and exceedingly tender area.

Fourth—Besides these peculiar skin manifestations there was found a definite arthritis, involving the left knee, the right ankle and both wrists. At the time of my visit the diagnosis was uncertain. I could only suggest that an examination of the secretion from the pustules would probably reveal the nature of the infection, and this line of investigation it was that soon after settled the nature of the disease. The case was such an unusual one that I subsequently urged Dr. Beattie to report the clinical history in full. At my solicitation he furnished me the following statement:

Clinical History of the Case.

Mr. H. C. A., aged 50, weight 190 pounds, height 5 feet 10½ inches, was afflicted with chronic Bright's disease, but otherwise previously well. On June 2, 1904, at my first visit, I learned that he had been ill all night with nausea, vomiting, severe headache, and pain in every bone and muscle. His eyes were swollen and dull, the conjunctiva slightly stained yellow. The abdomen was prominent, due to flatulence and constipation. His temperature was 102.4°, his pulse 110, and his respirations 28.

On June 3d the temperature was normal, the pulse normal, there was less flatulence, but the sense of muscular soreness was the same. Some nausea was complained of, but no vomiting; the constipation was relieved. On June 4th the temperature was 101°, the pulse 80.

On June 5th the temperature was 101.4°, the pulse 82. The patient complained of nausea, vomiting, sore throat, and dryness of the nose. There was also pain in one knee. A small spot on the top of the head, which was easily seen because of there being no hair, had become inflamed.

On June 6th the morning temperature was 100°, the pulse 80, and the symptoms of the preceding day had increased.

Many small red spots were seen all over the body and limbs, with an erythema around the spots. The urine was scanty. In the evening the temperature was 101.8°, the pulse 82, and respirations 27. The spot on the head had become a pustule.

On June 7th it was observed that pus had formed in each red spot. The temperature was 100.8°, the pulse 72, the respirations 26. The throat was sore, and a pustule was found on the pharynx. The ankle and knee were very tender on the left side. The pustule on the head was larger, bluish black and with a red areola around it. The evening temperature was 102.8°, the pulse 80, the respirations 28. The urine for 24 hours was 42 ounces. The amount of nourishment taken was 20 ounces. The patient complained of feeling chilly.

On June 8th the temperature in the morning was 101.4°, the pulse 82, the respirations 26; in the afternoon the temperature was 101.4°, pulse 82, respirations 32.

On the 9th the temperature in the morning was 101.4°, pulse 100, respirations 28; in the afternoon the temperature was 102.6°, pulse 108, respirations 34. The patient complained of pain in every joint.

On June 10th the temperature in the morning was 101.2°, pulse 102, respirations 26; in the afternoon the temperature was 104°, pulse 100, respirations 44. The urine was voided involuntarily; hiccup, stertorous breathing and slight convulsions were added to the clinical picture. On June 11th the temperature in the morning was 104°, pulse 140, respirations 54. The patient died at 10 A. M. The lips and face became purple, and there were slight convulsions before death.

The eruption appeared first as small red spots, which came out in successive crops all over the body and limbs. Gradual enlargement of these spots took place, and a slight elevation, so that from macules they became papules. In less than 30 hours pus formed in each lesion. When a pustule was pricked with a needle, it collapsed; the pus evacuating the place and leaving a well-defined hole, the edges being regular and their color a light red, to the distance of about 1-32 of an inch. The bottom of the pit extended well into the deep skin. At no time did these pits fill up, and there was no tendency to heal. When crusts formed and were removed, the pit was still there.

The bacteriological findings.—On June 9th, following my visit to Santa Clara, Mr. G. C. Lammers, a bacteriologist living in San Jose, was asked by Dr. Beattie to investigate the secretion from the skin lesions. Mr. Lammers has kindly furnished me the following report of his findings:

Swabs were taken by me at the bedside from the pustule in the pharynx, and from the pustules on the skin. Smears were made from these, and stained as follows: with Loefler's basic blue for 5 minutes, submerged for 1 second in a 1% solution of acetic acid, to which had been added sufficient tropaeolin OO in aqueous solution to produce a wine-yellow color, and then rinsed rapidly in distilled water. Under the microscope cover-slips stained in this manner showed masses of bacteria, measuring from 2 to 3 microns in length and about 0.4 microns in width; they did not respond to Gram's method, and some of them showed metachromatic granules.

Cultures were also made from the swabs on gelatine, one in a Petri dish and one in a culture tube. On the evening of the second day the gelatine plate in the Petri dish showed several small colonies of a yellowish-white color, some on the very surface and some extending slightly downward. Those resting on the surface were surrounded by small transparent aureoles. In the test tube the colonies were of about the same size as in the Petri dish, but of a more greyish, translucent and glossy appearance. The bacteria from the cultures, stained as described, were identical with the organisms found in the smears.

Guinea pigs or other suitable animals for inoculation were not at hand, and no experiments with animals were therefore made by me.

From the appearance of the stained specimens and of the cultures, taken in connection with the source from which they were obtained, I concluded that the organism was the bacillus mallei, and that the case was one of glanders.

A day or two after my visit to Santa Clara, Dr. Beattie sent to me in San Francisco some wooden toothpicks, the ends of which had been dipped in the purulent secretion and thoroughly coated with it; but from these dried specimens no successful cultures could be made by Dr. William Ophüls, to whom I submitted them, probably because desiccation had destroyed the life of the organisms. Several weeks later I was supplied with some of the cultures made by Mr. Lammers, and from these a guinea pig was inoculated by Dr. Ophüls, but without result, probably because the cultures were by that time dead.

The source of infection.—As soon as the probability was made known to the family that the patient's disease was glanders, his brother recalled the

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fact that the patient's driving mare had a cold and a discharge from the nose. This mare was quarantined, and Dr. H. A. Spencer, a veterinary surgeon of San Jose, was asked to examine her. Dr. Spencer at once gave an inoculation of mallein, and eighteen hours later the animal's temperature showed an exceedingly high reading, with augmentation of the nasal discharge. Following this reaction the mare was promptly killed. Mr. Lammers secured some of the animal's nasal secretion when she was first suspected, and this showed in smears and in cultures the same bacillus as that found in the patient's pustules. It seems reasonable to infer, therefore, that the disease in the man was transmitted from the disease in the animal.

The mode of infection.—Apparently the infection was direct to a scratch on the patient's head by an infected finger nail. This scratch looked at first like an ordinary abrasion. It became inflamed, was covered over by thin skin, then became dark with an erythematous patch around it. This inflamed area extended and pus formed in the center of it. The erythema eventually covered the whole top of the head and the forehead, while the black sloughing extended two inches from before backwards and one inch from side to side. It is usually through some break in the skin, all investigators agree, that the bacillus mallei is conveyed to man from a horse afflicted with glanders. The only other common port of entry is the nasal mucous membrane, but the symptoms and physical signs in this case did not speak for such a route.

Other cases reported.—I can find but 5 other cases of human glanders reported in California, though I feel certain that more must have been observed. These 5 cases are as follows:

Case 1.—Reported by Dr. J. D. Arnold in the *Pacific Medical and Surgical Journal* in January, 1887: A boy 12 years old when first seen, complained of having had for a week vague pains in his head, nose and neck, with fever, enlargement of the submaxillary and parotid glands, and thin watery discharge from the nostrils. Soon after that the nasal discharge became profuse and greenish yellow. A pustular eruption came out over the face, neck and breast, with a hard nodular swelling at the base of each pustule. Marked anasarca of the eyelids and nose developed as the disease progressed, with redness, swelling and great pain in the whole face. General sepsis and a typhoid condition ensued with death on the 8th day after the patient was first seen. A horse belonging to the father had died from glanders a short time before, and the hay-rack and trough used by the diseased horse had been torn from the stable and thrown into the cellar for firewood. The boy handled this wood. No bacteriological investigation and no autopsy are mentioned in the report.

Case 2.—Reported by Dr. J. D. Arnold in the same paper with case No. 1: A boy aged 7, a brother of the one described in case No. 1, was taken ill at the same time with similar symptoms—pain in the throat, nose, eyes and back, with fever and a thin, colorless nasal discharge. No pustule came out on the skin except just within the nostrils. This boy recovered from his acute illness after 3 weeks, but died 3 months later from pleurisy. No mention is made of any bacteriological examination or autopsy.

Case 3.—Reported to the California Academy of Medicine in 1892, by Dr. Dudley Tait, but never published: A woman aged 29, while driving in Golden Gate Park, San Francisco, received in her face some mucus from a sneezing and coughing horse. Five days later she entered the French Hospital, with a temperature of 103°, and pulse 110. A small ulceration was found at the orifice of the left nostril, and nasal examination revealed numerous ulcerations of the lining mucous membrane. There was marked muco-purulent discharge from both nostrils. There were several pustules on the face and a submaxillary adenitis. On the second day new pustules appeared on the face and arms, and erysipelas developed, involving both sides of the face. The patient died on the third day. Smears and potato cultures from the nasal secretion showed the bacillus mallei. The suspected horse was examined by Dr. Creely, who found glanders present. The horse was killed, and necropsy confirmed the diagnosis.

Case 4.—Reported to the California Academy of Medicine by Dr. Tait, at the same time as case No. 3, but never published: A man aged 52, a farmer, first noticed in 1889, a small collection of pus in the sternal region. This opened spontaneously, and left an ulcer about the size of half a dollar. Subsequently, after several attacks of what he called "colds," he had other similar abscesses on the chest, neck and arms; also marked cervical and axillary adenitis. Marked articular and muscular pains were complained of. During the second year there was remission of the general symptoms; but no change in the ulcers and lymphatic involvement. No skin eruption at any time

occurred, no digestive or nervous disorder. Later a great number of abscesses appeared, sometimes within 24 hours, on the chest and arms. Slides, agar and potato cultures and inoculations from pus, proved positive for the bacillus mallei. He died in 1903, 4½ years after his first symptoms, from acute glanders (pulmonary infection). No necropsy was obtained.

Case 5.—Reported to the San Francisco County Medical Society in July, 1902, by Dr. H. A. L. Ryfkogel, and published in the *Occidental Medical Times*, December, 1902: A woman aged 35, was taken ill with symptoms resembling a severe cold in the head, and with fever of 101°. She was attended by Drs. Dunn, Herzstein and Ryfkogel. A few days previous to the onset of her illness, she was out driving a horse hired from a stable in which 2 months before 2 horses had been killed for glanders. The patient after she was first seen, developed symptoms resembling those of typhoid fever; then pain in the left knee and the right ankle; and later, small symmetrical abscesses appeared in the neighborhood of joints, on knees, arms, ankles, hands, and later also on the forehead. When opened, these discharged a thin watery pus. The abscesses became more numerous; the nose began to secrete abundant purulent fluid; the tissues in the face became enormously swollen; pneumonic symptoms developed, and there was continued fever until the patient's death, after an illness of 26 days. Smears from the pus showed the bacillus mallei. Cultures on agar and on potato gave characteristic colonies. Inoculation of guinea pigs with pus produced in every case reddened and swollen scrota; and on autopsy the tunica vaginalis was found covered with a cheese-like pus, smears and cultures from which showed again the bacillus mallei.

Frequency of glanders in this state.—I have tried to secure some statistics as to the incidence of human glanders in California, but can find none. The Secretary of the State Board of Health, in reply to my inquiry, writes me that the Board has no statistics on the subject, and there seems to be no way to discover in how many instances human glanders has been assigned as a cause of death in the State. There are likewise no statistics available as to the number of horses killed each year because afflicted with glanders, but in a general way I am informed that the number is large. Until we do know definitely the number of horses and the number of human beings afflicted, we can draw no accurate conclusion as to the frequency with which the disease is transmitted from animals to man. It probably is not so rare as the cases here collected would suggest.

TYPHOID INFECTION OF THE HIP JOINT. REPORT OF A CASE.*

By S. J. HUNKIN, M. D., San Francisco.

IT HAS long been known that joints, and especially the hip joints, were occasionally infected in patients suffering with, or during recovery from, typhoid fever, but until the last few years it was supposed that these affections were rather incident to the typhoid condition than dependent upon its specific entity. Of course until we were conversant with the Eberth bacillus, it was manifestly impossible to determine positively whether this coxitis was specifically typhoid or dependent upon varying causes, perhaps a slight traumatism, while the reparative powers were at the lowest possible ebb. Even now little is known of the bacteriology of these joint invasions, and it is still an open question whether, in the majority of instances, the pathology is dependent upon the direct presence of the typhoid bacilli, or is not rather due to the circulating toxins generated by the bacilli. Goldthwaite believes that this varies in the different cases—that usually the condition is dependent upon the bacillary products, while at other times there is a direct invasion of the joint cavity by the bacillus.

It would appear that study of the bacteriology of the inflammatory products would at once clear up this question, but cases of typhoid joints are rare, and in most of these the diagnosis has been made late, no bacteriology has been attempted, and when attempted the result has been negative for typhoid bacilli.

Keen, in his classic monograph, reports only 5 instances in which search was made for bacteria, and in 1 only (that of Klemm) was Eberth's bacillus found.

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